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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/084,356      | 02/28/2002  | Michiaki Sakamoto    | 8004-1003           | 5588             |

466 7590 06/02/2004

YOUNG & THOMPSON  
745 SOUTH 23RD STREET 2ND FLOOR  
ARLINGTON, VA 22202

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| EXAMINER |
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WANG, GEORGE Y

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| ART. UNIT | PAPER NUMBER |
|-----------|--------------|

2871

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/084,356

Applicant(s)

SAKAMOTO ET AL.

Examiner

George Y. Wang

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AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2-8 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-8 and 16-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 2, 4-8, 16-17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda et al. (U.S. Patent No. 5,936,688, from hereinafter "Tsuda") in view of Nakai (U.S. Patent No. 6,219,119).

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3. Regarding claims 16-17 and 19, Tsuda discloses a reflector (fig. 3, ref. 15) for a reflection-type LCD device comprising plural interconnected protrusions (fig. 9d, ref. 72c) made of organic resin (col. 216, lines 40-41) having depressed areas between adjoining ones of the plural protrusions, a first bumpy layer (fig. 9e, ref. 74) covering the protrusions having a bumpiness generated by the protrusions, and a base layer of a reflector on the first layer, where the base layer has a bumpiness corresponding to the bumpiness of the first layer to form a protrusion pattern of a surface of the reflector, the protrusion pattern giving an inclination angle to the surface according to a specified distribution (fig 2a-2e).

However, the reference fails to specifically disclose a reflector with plural interconnected protrusions where each depressed areas has a closed geometric shape.

Nakai discloses a reflector as recited above having a bumpy layer corresponding to the bumpiness of the protrusions where the depressed areas (fig. 8, ref. 4) between adjoining protrusions (fig. 8, ref. 1) are closed geometric shapes (fig. 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have depressed areas between adjoining protrusions, depressed area having a geometric shape since one would be motivated to improve the light-condensing capability of the reflector (col. 10, lines 30-32). Ultimately, a wide viewing angle and strong reflection can coexist to produce a quality image (col. 3, lines 57-60).

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4. As to claim 2, Tsuda discloses a reflector as recited above where the specific distribution of inclination angle values of the roughened surface has an average value within a range from  $2^{\circ}$  to  $6^{\circ}$  (fig 2a-2e).

5. Regarding claims 4-8, Tsuda and Moon disclose the reflector as recited above, however; the references fail to specifically disclose depressed areas between adjoining protrusions, depressed area having a closed geometric shape selected from a group consisting of triangle, rectangle, or ellipse, and protrusion dimensions that satisfy  $0.5 \leq (D/W) \leq 1.0$ ,  $0.5 \leq (d/L) \leq 0.2$ , and  $(D/d) \leq 3$  with a maximum value of height.

Nakai discloses reflector as recited above having a bumpy layer corresponding to the bumpiness of the protrusions with depressed areas (fig. 8, ref. 4) between adjoining protrusions (fig. 8, ref. 1), the depressed area having an elliptical and rectangular geometric shape (fig. 4), rectangle, or ellipse, and protrusion dimensions that satisfy  $0.5 \leq (D/W) \leq 1.0$ ,  $0.5 \leq (d/L) \leq 0.2$ , and  $(D/d) \leq 3$  with a maximum value of height (fig. 13; col. 10, lines 10-48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have depressed areas between adjoining protrusions, depressed area having a geometric shape selected from a group consisting of rectangle or ellipse, and protrusion dimensions that satisfy  $0.5 \leq (D/W) \leq 1.0$ ,  $0.5 \leq (d/L) \leq 0.2$ , and  $(D/d) \leq 3$  with a maximum value of height since one would be motivated to improve the light-condensing capability of the reflector (col. 10, lines

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30-32). Ultimately, a wide viewing angle and strong reflection can coexist to produce a quality image (col. 3, lines 57-60).

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda and Nakai in view of Moon (U.S. Patent No. 6,543,901).

7. As to claim 18, Tsuda discloses the reflector as recited above with a protrusion pattern giving inclination angle (fig 2a-2e) to the surface according to a specific distribution where a first component with an inclination angle value of 0° is 15% or less in area (col. 7, lines 41-45) and a second component with an inclination is 50% or greater in area (col. 6, lines 51-55).

However, the reference fails to specifically disclose a protrusion pattern giving inclination angle to the surface according to a specific distribution where a second component with an inclination value from 2° to 10°.

Moon discloses a reflector having a protrusion pattern giving inclination angle to the surface according to a specific distribution where a second component with an inclination value from 2° to 10° (col. 8, lines 4-13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a reflector for a reflection-type LCD device comprising a second component with an inclination value from 2° to 10° that is 50% or greater in area since one would be motivated to prevent the occurrence of interference (col. 8, lines 7-8). This would not only improve light efficiency for

obliquely inputted light but also optimizes brightness and display quality (abstract; col. 2, lines 44-55).

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 2, 4-8, and 16-19 have been considered but are moot in view of the new ground(s) of rejection.

Applicant first argues that none of the references teach interconnected protrusions because none of the protrusions are in contact with each other.

However, Examiner notes that the claims merely recite that the protrusions to be "interconnected." There is no language that requires the protrusions to be in contact with each other. All that is required is that the protrusions are "interconnected," and that could be achieved by any means such as an underlying substrate or a string running through each of the protrusions.

Applicant then argues that none of the references teach a closed geometric shape. Examiner disagrees. First, the language, "a closed geometric shape," is broad and pretty much any type of space can form a "geometric shape." Thus, the importance of this shape may rest on its "closed" nature.

However, it is not understood how a "closed" shape formed by protrusions would still have a bumpy surface. And since Applicant's specification does not go into any detail as to the meaning of closed, Examiner could only construe the meaning of "closed geometric shape" as "definite geometric shape" since Applicant offers various definite shapes, such as triangular, rectangular, and elliptical, in the dependent claims. But since the independent claims do not rely

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on any of the defined shapes, it is clear that any geometric shape could meet the limitations of the claim language. As such, the Nakai reference clearly discloses protrusions with depressed areas having a closed geometric shape.

Therefore, Examiner holds to the validity of the references used and maintains rejection.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 571-272-2304. The examiner can normally be reached on M-F, 8 am - 4:30 pm.




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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gw  
May 28, 2004

  
ROBERT H. KIM  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800